

John Sands  
Sega SC3000H  
Personal Computer



**Users Instructions,  
Warranty and  
Registration Form**

Congratulations on owning  
The Computer of Tomorrow.  
Before using your John Sands Sega  
SC3000H, please make sure you read  
this manual carefully.

**Help us to help you.**

Fill in and return the reply  
paid card inside.

**Free Computer Course**  
Refer details inside

# Users Instructions, Warranty and Registration Form



Console Unit

Precaution: Only turn the power on when you are sure everything is connected correctly.  
Never insert a cartridge when the power is turned on. Insert the cartridge first, then switch on.



AC Adaptor



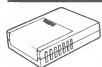
Computer Cable



Side view of Console Unit  
Cartridge Slot



Side view of Console Unit  
Joystick Slots



Games Cartridge  
Games  
Music  
Education  
BASIC Language.

Cassette Program  
Education  
Personal Business  
Games



Joystick SJ300



Rear view of Console Unit

RF Antenna Socket  
Channel Selector Switch  
Composite Video Socket  
Printer Port  
Cassette Port  
Power Socket  
Power Switch

## Connecting the John Sands Sega SC3000H Personal Computer to your home TV and antenna

---



Remove the antenna lead from your television set.  
Connect the Computer Cable to the antenna connection of your television set.

---

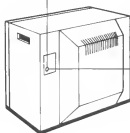


Connect the Computer Cable to the RF Antenna Socket of the computer.



RCA Connector

75Ω Connector



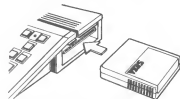
Antenna Socket

---

# How to use your John Sands Sega SC3000H Personal Computer



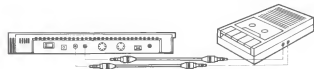
1. Turn your TV to either VHF Channel 3 or 4 and switch your Computer Channel Selector to L for Channel 3 or H for Channel 4. Adjust fine tuning of TV.



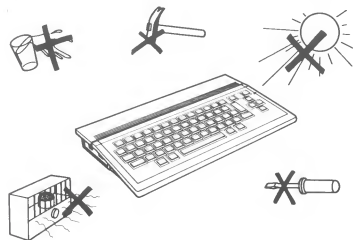
2. Insert your John Sands Sega SC3000 Cartridge, making sure the power to your computer is turned off. Push cartridge firmly until the Sega name is just visible.



3. After making sure you have connected everything properly, plug in the AC Adaptor and then turn on the Main Switch of the computer. You're away!



Connect cassette player to SC3000H to store and recall programs, music and data as per detailed instructions (overleaf) using the patch leads supplied.



## Please look after your computer.

The John Sands Sega SC3000H computer is a very fine and complex piece of equipment. Please take care when using or handling it. When not in operation, it is advisable to always disconnect the AC Adaptor.

If you ever do strike a problem, switch off the computer immediately and contact the retailer from whom you bought it.

## Keeping and Loading your Programs

Before we tell you how to LOAD your program in order to keep it for further use at any time, we'll explain the way in which it is kept and used in Random Access Memory – or RAM as it is more frequently called. All information entered into the computer either by you using the keyboard or from a cassette tape (or Micro disk) is held in the form of BINARY NUMBERS. These numbers are represented by either ONES or ZEROS.

The computer does this by turning on or off literally tens of thousands of electrical switches known as TRANSISTORS which are inside INTEGRATED CIRCUITS or MICRO CHIPS.

The BINARY CODE is something like Morse Code – which has combinations of dots and dashes to represent letters of the alphabet, numbers as well.

With your computer, once the power is turned off all the switches revert to zeros and your program is lost forever!

If we want to keep a permanent record of the program, it must be transferred to cassette tape.

When you have completed a program on your John Sands Sega and wish to keep it, you use the SAVE command. When this occurs, the computer converts the BINARY CODE into audible sound tones which range from frequencies of around 3000 Hertz (or cycles per second) which represent the zeros, and around 5000 Hertz which represent the ones.

On a typical SAVE command, a constant 'leader' tone of 4 seconds is heard, followed by a burst of File Header Data which contains the File Name, followed by another 4 seconds of constant tone. This is then followed by the program code being SAVED in bursts of 600 bits per second. (A bit is one eighth of a byte or character.)

You can hear these sounds occurring with the John Sands Sega Data Recorder, or through the loudspeaker of a cassette recorder if you disconnect the earphone jack.

If we wish to reload the program into the Sega from the cassette tape, we use the BASIC language code LOAD.

The computer will then search over the tape for the leader tone. When it finds the File Name you require, it will announce the fact on the screen by printing the words FOUND FILE (NAME). It then continues to LOAD the program code for up to several minutes. When it has completed the job, the words LOADING END will appear on your screen.

The program is now in the computer's Random Access Memory (RAM). The tape can be stopped, and by pressing the RUN key you will start the program.

If your Sega cannot find the leader tone, or the particular File Name, it will keep on looking for ever! During the LOAD or SAVE activities there will be no response from any of the keys on the keyboard, except for RESET.

If you know your program is near the beginning of the tape, you should have a FOUND FILE (NAME) response in about 20 seconds. If this doesn't happen we suggest you rewind the tape and try again; this time starting with the volume setting at the mid point and gently increasing it. Hopefully, you will hear something!

When the computer does find the leader tone it will then attempt to LOAD. At any time during the LOAD process, you may see a TAPE READ ERROR appear on the screen. This means the computer has lost the signal which is coming from the tape and the LOAD operation has been discontinued.

There are several causes of this infuriating problem! So it's best to make sure they never, or hardly ever, occur.

The most common are these:

- Poor quality tapes. Always use Low Noise 60 minute, or shorter tapes. Never use Chrome or Metal tapes.
- Kinks in the tape. Never leave the Play button on when you're not recording.
- Poor quality original recording. Make sure you verify all your SAVES. Make a back up tape of everything too.
- Bad electrical connections. Make sure your leads are not faulty from the recorder to your John Sands Sega.
- Poor alignment of recorder head. This can result in signal loss which is definitely what you don't want! Make sure you use a well known and reliable recorder.
- Signal recorded too low. Adjust the VU recording level on your cassette deck to give the maximum signal power without distortion.

From all the above, you can see that to SAVE and LOAD computer program is quite a critical process. More so, than for voice or music recording. A small loss of signal might not be even noticeable by the human ear – but it's absolutely vital for your Sega.

You cannot load just part of a program either; it's all or nothing! It's a funny thing, but some sophisticated hi-fi cassette decks do not make as reliable computer recorder units as less expensive, portable models. This is because the costly units very faithfully reproduce high frequency sounds as well as any other noise which may be on the tape.

All this does is to corrupt your data signal and the result is not the one you're looking for!

The best of all cassette data units are those which have been produced especially for use with computers.

These are called 'dedicated' models, and contain special filters which restrict the recorded signals to the frequencies we want.

You can also expect potential problems if you SAVE a program on one recorder and LOAD it from another.

Nearly all mass produced cassette recorders have slightly different head alignment and signal characteristics.

### The equipment you will need

You'll need a recorder compatible with your John Sands Sega. If you already own a portable or hi-fi cassette recorder, try it out anyway. Then you'll need at least one connection cable with standard 3.5mm Earphone Jack on both ends – or an RCA jack on the recorder end if you are using a hi-fi deck.

And, naturally, a good quality blank audio cassette tape.

Once you've got that list organised, you're on your way!

### How to save your programs

1. Connect the cable from the OUT socket on the back of your John Sands Sega to the IN socket of your John Sands Sega Data Recorder or the MIC or MICROPHONE socket of your cassette recorder.

2. Advance the tape until the brown, magnetic section is visible on both reels.

Hold down the FUNC key and press the SAVE key on your Sega. The screen will indicate SAVE.

Now type a File Name – which can be up to 16 characters long.

3. Press the **SAVE** key of your Data Recorder, or the **Record and Play** keys of your cassette recorder; then press the **CR** key on your Sega. On the screen you will now see **SAVING START**.

This means that your data is now being written to the tape, and can take from one to several minutes, depending on the length and complexity of your program. When the **SAVE** is completed you will hear a **BEEP** and the screen message will change to **SAVING END**.

4. Now we're going to check that all the information has been **SAVED** on the tape.

Rewind the tape.

Connect the cable from the **OUT** socket of your John Sands Sega Data Recorder, or the Earphone or External Speaker socket of the cassette recorder to the **cassette IN** socket on your Sega. If you are not using a Data Recorder, adjust the volume level to  $\frac{3}{4}$  of its maximum.

5. Hold down the **FUNC** key of the Sega and at the same time press the **VERIFY** key.

The screen will indicate **VERIFY**.

Now type in your File Name and press the **CR** key.

The screen will then show **VERIFYING START**.

Now press **LOAD** on the John Sands Sega Data Recorder, or **Play** on the cassette recorder.

Within 20 seconds you should hear a **BEEP** and the screen will read **FOUND FILE (NAME)**.

If the words **SKIP FILE (NAME)** appear, you may have made a mistake in the spelling of your **FILE (NAME)**. Check it to make sure. If you did make a mistake, press **RESET**, rewind the tape and try again – this time spelling the file correctly. (You can omit the file name completely if it is the first file on the tape.)

If no file name is found within 20 or 30 seconds, go through the procedure again – this time increasing the volume on the recorder. If you still have no success, try another **SAVE**, or another brand of audio tape. If all else fails, try another cassette recorder.

### How to load your programs

The **LOAD** procedure is much the same as when you **VERIFY**.

Here we go –

1. Connect the cable from the **OUT** socket of the John Sands Sega Data Recorder, or the earphone or external speaker socket on your recorder to the **cassette IN** socket on your John Sands Sega.

Adjust the volume level to  $\frac{3}{4}$  of its maximum.

2. Hold down the **FUNC** key and press the **LOAD** key.

The screen will respond with **LOAD**.

Now type in your File Name and press the **CR** key.

The screen will now show **LOADING START**.

Now press **LOAD** on the Data Recorder, or **Play** on the cassette recorder.

Within 20 seconds you should hear a **BEEP** and the screen should show **FOUND FILE (NAME)**.

If the message **SKIP FILE (NAME)** appears, you may have made an error in the typing of the File Name. If you did, press **RESET**, rewind the tape and retry the **LOAD** with the correct spelling of the File Name. (You can omit the File Name if it is the first one on the tape.)

If no File Name is found within 20 or 30 seconds, start the procedure over again with more volume on the recorder.

If you're still having no luck, try another cassette tape or recorder.

If there are several programs on your tape, the Sega will search for the particular File Name – showing on the screen the file names it has skipped over as it keeps searching.

A good idea, which saves time, is to make a note of the correct position of each particular program by using the counter of your cassette deck. You can then **Fast Forward** to just before this position when you begin to **LOAD**.

Now that was really quite simple wasn't it?

The above is an excerpt from "Programming with your John Sands Sega Personal Computer", published by John Sands Electronics, 1984.

# Trouble-shooting guide

Before you think about calling for help, use this trouble-shooting guide:

---

Sometimes, you can't get the computer to do what you expect it to do. Usually it's something simple which you can rectify yourself. If the problem remains, after checking through the list below, please contact your retailer who will most certainly be able to help you.

## No picture on screen:

---

- |  |   |   |
|--|---|---|
| <ul style="list-style-type: none"><li>• Is the power source properly connected?</li><li>• Is the socket outlet properly plugged in?</li><li>• Is the computer channel selector switched to the correct TV channel?</li></ul> | <ul style="list-style-type: none"><li>• Is the power switch for the TV turned on?</li><li>• Make sure that you have not confused the RF Terminal with the Video Terminal at the rear of the computer.</li></ul> | <ul style="list-style-type: none"><li>• Is the cartridge pushed in until the Sega name is just visible?</li><li>• Note: some European made TV sets will not work without a change of modulator.</li></ul> |
|--|---|---|

## Screen flickers or no sound:

---

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Are the antenna wires properly and securely connected?</li><li>• Are you sure the TV fine tuning adjustment hasn't been accidentally changed?</li></ul> | <ul style="list-style-type: none"><li>• Is the TV colour adjustment correctly set?</li><li>• Is your Cartridge properly 'seated' in its socket?</li></ul> |
|---|---|

## No game sound:

---

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>• Is the TV fine tuning correctly adjusted?</li><li>• Is the TV volume setting too low?</li></ul> | <ul style="list-style-type: none"><li>• Are any connection cables loose or unconnected?</li></ul> |
|---|---|

## Unsteady pictures on screen:

---

- Are the television set settings for Vertical and Horizontal Hold correctly set?

## 'Fringes' appear on screen during a game:

---

- Turn the fine adjustment setting of your television set until the problem disappears.

## 'Fringes' appear on screen during television programme:

---

- Is the TV antenna properly connected?

## If you do need service:

---

Please contact the retailer from whom you bought your John Sands Sega SC3000H Personal Computer.

# Warranty

1. The benefits conferred by this Warranty are in addition to all other rights and remedies in respect of the John Sands Sega SC3000H Personal Computer and associated John Sands Software Programs to which the purchaser is entitled under the Trade Practices Act and similar State and Territory Laws of Australia.
2. John Sands Limited, trading as John Sands Electronics of 6 Bay Street Port Melbourne, Victoria ('John Sands Electronics') warrants to the original purchaser (the 'Purchaser') that the John Sands Sega sold to the Purchaser shall be free from defects in materials and workmanship for a period of 90 days from the date of purchase by the Purchaser (the 'Warranty Period'). In the event that a defect covered by this Warranty is discovered within the Warranty Period, John Sands Electronics will, at its option, either repair or replace the Sega upon delivery of the defective Sega by the Purchaser to the John Sands Electronics Sega dealer from whom the Sega was purchased. Any claims under this Warranty must be made by the Purchaser to such dealer within the Warranty Period. All transport charges incurred by either the Purchaser or John Sands Electronics in connection with a claim under this Warranty shall be paid by the purchaser. The Warranty will only apply if, during the Warranty Period, the Sega is properly maintained, used and operated in accordance with the recommendations, instructions and operating limitations specified for the Sega by John Sands Electronics. The Warranty does not apply in the following cases:
  - a) Defects, damage or malfunctions suffered by or existing in the Sega resulting from improper handling, accident or act of God, misuse or abuse of the Sega by any person other than John Sands Electronics, failure of electrical power or failure of air conditioning.
  - b) Defects, damage or malfunctions suffered by, or existing in the Sega and developing while in transit for repairs.
  - c) Where repairs or modifications of the Sega are attempted or carried out by any person not authorised to do so by John Sands Electronics.
  - d) Any other defects, damage or malfunctions not due to defects in materials or workmanship of the Sega.
  - e) Defects, damage or malfunctions in, or which are attributable to the use of, any modification made to the Sega unless such modification has been made by, or for, at the direction of John Sands Electronics.
3. The obligations accepted under this Warranty are to be fulfilled by John Sands Electronics, and not any other person, class of persons, or corporation.

## John Sands Electronics

Division of John Sands Limited  
Incorporated in New South Wales  
6 Bay Street Port Melbourne  
Victoria 3207 Australia  
Telephone (03) 645 3333



## Loading your programmes.

Before we tell you how to LOAD your program in order to keep it for further use at any time, we'll explain the way in which it is kept and used in Random Access Memory—or RAM as it is more frequently called.

All information entered into the computer either by you using the keyboard or from a cassette tape (or a disc) is held in the form of BINARY NUMBERS. These numbers are represented by either ONES or ZEROS.

The computer does this by turning on or off literally tens of thousands of electrical switches known as TRANSISTORS which are inside INTEGRATED CIRCUITS or MICRO CHIPS.

The BINARY CODE is something like Morse Code—which has combinations of dots and dashes to represent letters of the alphabet; numbers as well.

With your computer, once the power is turned off all the switches revert to zeros and your program is lost forever! If we want to keep a permanent record of the program, it must be transferred to cassette tape.

When you have completed a program on your John Sands Sega and wish to keep it, you use the SAVE command. When this occurs, the computer converts the BINARY CODE into audible sound tones which range from frequencies of around 3000 Hertz (or cycles per second) which represent the zeros, and around 5000 Hertz which represent the ones.

On a typical SAVE command, a constant 'leader' tone of 4 seconds is heard, followed by a burst of File Header Data which contains the File Name, followed by another 4 seconds of constant tone. This is then followed by the program code being SAVED in bursts of 600 bits per second.

You can hear these sounds occurring over the cassette recorder loudspeaker if you disconnect the earphone jack.

If you wish to reload the program into the Sega from the cassette tape, we use the BASIC command LOAD. The computer will then search over the tape for the leader tone. When it finds the File Name you require, it will announce the fact on the screen by printing the words FOUND FILE (NAME). It then continues to LOAD the program code for up to several minutes. When it has completed the job, the words LOADING END will appear on your screen.

The program is now in the computer's Random Access Memory (RAM). The tape can be stopped, and by pressing the RUN key you will start the program.

If your Sega cannot find the leader tone, or the particular File Name, it will keep on looking forever! During the LOAD or SAVE activities, there will be no response from any of the keys on the keyboard, except for RESET.

If you know your program is near the beginning of the tape, you should have a FOUND FILE (NAME) response in about 20 seconds. If this doesn't happen we suggest you rewind the tape and try again; this time starting with the volume setting at the mid point and gently increasing it. Hopefully, you will hear something!

When the computer does find the leader tone it will then attempt to LOAD. At any time during the LOAD process, you may see a TAPE READ ERROR appear on the screen. This means the computer has lost the signal which is coming from the tape and the LOAD operation has been discontinued.

There are several causes of this infuriating problem! So it's best to make sure they never, or hardly ever, occur.

The most common are these:

Poor quality tape. Always use Low Noise 60 minute, or shorter tapes. Never use Chrome or Metal tapes.

Kinks in the tape. Never leave the Play button on when you're not recording.

Poor quality original recording. Make sure you verify all your SAVES. Make a back-up tape of everything too.

Bad electrical connections. Make sure your leads are not faulty from the recorder to your John Sands Sega.

Poor alignment of recorder head. This can result in signal loss which is definitely what you don't want! Make sure you use a well-known and reliable recorder.

Signal recorded too low. Adjust the VU recording level on your cassette deck to give the maximum signal power without distortion.

From all the above, you can see that to SAVE and LOAD computer programs is quite a critical process. More so, than for voice or music recording. A small loss of signal might not be even noticeable by the human ear—but it's absolutely vital for your Sega. You cannot load just part of a program either; it's all or nothing!

It's a funny thing, but some sophisticated hi-fi cassette decks do not make as reliable computer recorder units as less expensive, portable models. This is because the costly units very faithfully reproduce high frequency sounds as well as any other noise which may be on the tape. All this does is to corrupt your data signal and the result is not the one you're looking for!

The best of all cassette data units are those which have been produced especially for use with computers. These are called 'dedicated' models, and contain special filters which restrict the recorded signals to the frequencies we want.

You can also expect potential problems if you SAVE a program on one recorder and LOAD it from another. Nearly all mass produced cassette recorders have slightly different head alignment and signal characteristics.

If you SAVE a program using a particular recorder, we suggest you use the same recorder to LOAD the program wherever possible.

**The equipment you will need.**

You'll need a recorder compatible with your John Sands Sega. If you already own a portable or hi-fi cassette recorder, try it out anyway.

Then you'll need at least one connection cable with standard 3.5mm Earphone Jack on both ends—or an RCA jack on the recorder end if you are using a hi-fi deck.

And, naturally, a good quality blank audio cassette tape.

Once you've got that list organised, you're on your way!

**How to save your programs.**

1. Connect the cable from the OUT socket on the back of your John Sands Sega to the MIC or MICROPHONE socket of your recorder.

2. Advance the tape until the brown, magnetic section is visible on both reels.

Hold down the FUNC key and press the SAVE key on your Sega. The screen will indicate SAVE.

Now type a File Name—which can be up to 16 characters long.

3. Press the Record and Play keys of your cassette recorder; then press the CR key on your Sega.

On the screen you will now see SAVING START.

This means that your data is now being written to the tape, and can take from one to several minutes, depending on the length and complexity of your program.

When the SAVE is completed you will hear a BEEP and the screen message will change to SAVING END.

4. Now we're going to check that all the information has been SAVED on the tape.

Rewind the tape.

Connect the cable from the Earphone or External Speaker socket of the recorder to the cassette IN socket on your Sega. Adjust the volume level of the recorder to ¾ of its maximum.

5. Hold down the FUNC key of the Sega and at the same time press the VERIFY key.

The screen will indicate VERIFY.

Now type in your File Name and press the CR key.

The screen will then show VERIFYING START.

Now press Play on the recorder.

Within 20 seconds you should hear a BEEP and the screen will read FOUND FILE (NAME).

If the words SKIP FILE (NAME) appear, you may have made a mistake in the spelling of your FILE (NAME). Check it to make sure.

If you did make a mistake, press RESET, rewind the tape and try again--this time spelling the file correctly. (You can omit the file name completely if it is the first file on the tape.)

If no file name is found within 20 or 30 seconds, go through the procedure again--this time increasing the volume on the recorder.

If you still have no success, try another SAVE, or another brand of audio tape. If all else fails, try another cassette recorder.

#### How to load your programs.

The LOAD procedure is much the same as when you VERIFY.

Here we go--

1. Connect the cable from the earphone or external speaker socket on your recorder to the cassette IN socket on your John Sands Sega. Adjust the volume level to  $\frac{3}{4}$  of its maximum.

2. Hold down the FUNC key and press the LOAD key.

The screen will respond with LOAD.

Now type in your File Name and press the CR key.

The screen will now show LOADING START.

Now press Play on the recorder.

Within 20 seconds you should hear a BEEP and the screen should show FOUND FILE (NAME).

If the message SKIP FILE (NAME) appears, you may have made an error in the typing of the File Name.

If you did, press RESET, rewind the tape and retry the LOAD with the correct spelling of the File Name. (You can omit the File Name if it is the first one on the tape.)

If no File Name is found within 20 to 30 seconds, start the procedure over again with more volume on the recorder.

If you're still having no luck, try another cassette tape or recorder.

If there are several programs on your tape, the Sega will search for the particular File Name--showing on the screen the file names it has skipped over as it keeps searching.

A good idea, which saves time, is to make a note of the correct position of each particular program by using the counter of your cassette deck. You can then Fast Forward to just before this position when you begin to LOAD.

Now that was really quite simple wasn't it?

The above is an excerpt from "Programming Your John Sands Sega" published by John Sands Electronics, 1984.